

Message Text

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NASA/ ER: STONEY

ARA/ MEX/ SCI/ DR BEAUBIEN (INFO)

I/ MORRISON

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SUBJ: POSSIBLE COOPERATIVE REMOTE SENSING EXPERIMENT ON
SCREWORM ERADICATION

1. THIS IN REGARD TO THE JOINT MEXICAN- AMERICAN
CAMPAIGN FOR THE ERADICATION OF THE SCREWORM FLY.
(THE U. S. AND MEXICAN SECRETARIES OF AGRICULTURE
SIGNED ON AUGUST 28, 1972 A COOPERATIVE AGREEMENT TO
FORM A JOINT MEXICAN AMERICAN COMMISSION FOR THE
ERADICATION OF SCREWORMS).

2. THE SCREWORM IS AN INSECT THAT INFECTS LIVESTOCK
AND WILD ANIMAL LIFE CAUSING DEATH OR RETARDED GROWTH.
THIS PUPATING INSECT WAS ELIMINATED FROM THE U. S. IN
1966 BY THE USE OF U. S. DEPARTMENT OF AGRICULTURE
AIRCRAFT TO SEED INFECTED AREAS IN THE U. S. WITH SEXUALLY
STERILE SCREWORM FLIES AND A BARRIER (OF CONTINUOUS
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AIRCRAFT SEEDING OPERATIONS) ESTABLISHED ALONG THE U. S./ MEXICO BORDER.

3. A U. S./ MEXICO STUDY HAS DETERMINED IT WOULD BE FEASIBLE, IN A FOUR YEAR PROGRAM TO ERADICATE THE SCREWORM FROM MEXICO. IF BY SOME METHOD, SUCH AS REMOTE SENSING, IT COULD BE DETERMINED MORE ACCURATELY WHERE BEST TO DROP THE STERILE FLIES, IT MIGHT BE POSSIBLE TO REDUCE THE SEEDING PERIOD AND SIGNIFICANTLY REDUCE THE COST FOR THE PROJECT.

4. IN THIS CONTEXT A REMOTE SENSING EXPERIMENT IS PROPOSED TO COMPLEMENT THE AGREED MEXICAN/ AMERICAN COMMISSION EFFORT. ITS OBJECTIVE WOULD BE TO DETERMINE IF THE CLIMATOLOGICAL FACTORS MOST CONDUCIVE TO THE GROWTH OF THE SCREWORM INSECT CAN BE DETECTED BY REMOTE SENSORS, THEREBY DEFINING MORE PRECISELY THE AFFECTED ZONE FOR AERIAL SEEDING. IF THIS EFFORT IS SUCCESSFUL, IT WOULD SERVE AS A MODEL FOR APPLYING REMOTE SENSING TO THE DETECTION AND ERADICATION OF OTHER PUPATING INSECTS. THIS WOULD HAVE FAR- REACHING IMPLICATIONS FOR THE HEALTH APPLICATIONS FIELD.

5. THE PROJECT COULD BE DIVIDED INTO TWO PHASES:

PHASE I-- TO DETERMINE IF THERE ARE HIGHLY RELIABLE CLIMATOLOGICAL PARAMETERS CONDUCIVE TO THE GROWTH OF THE SCREWORM (SUCH AS TEMPERATURE, SOIL MOSTURE, AND VEGETATIVE COVER) WHICH COULD BE DETERMINED BY REMOTE SENSORS. FOR THIS PHASE, IT IS PROPOSED THAT A TEST SITE BE SELECTED, AIRCRAFT REMOTE SENSING OVERFLIGHT(S) BE CONDUCTED, AND METEOROLOGICAL AND REMOTE SENSING SPACECRAFT DATA BE ACQUIRED WITH ACCOMPANYING GROUND TRUTH TO CONFIRM THE PREDICTED RESULTS OF THE REMOTELY- ACQUIRED DATA. IT IS PROPOSED THAT THE TEST SITE BE SITUATED SOUTH OF THE CURRENT BOUNDARY OF SCREWORM CONTOL OPERATIONS TO PRECLUDE THE EFFECTS OF STERILE FLY RELEASE ON THE NATURALLY OCCURRING POPULATION. IT IS PROPOSED THAT THE AIRCRAFT (EITHER MEXICAN OR U. S.) OVERFLY THE TEST SITE PRIOR TO INITIATING DETAILED GROUND STUDIES. WE WOULD BE PLEASED FOR THE MEXICAN SPACE COMMISSION, CONEE, TO CONDUCT SUCH OVERFLIGHTS WITH ITS NEW AEROCOMMANDER 500- B REMOTE SENSING AIRCRAFT. (THIS WAS INFORMALLY DISCUSSED RECENTLY BY MS. ANDREWS TO THIS UNCLASSIFIED

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OFFICE WITH ING. SERGIO PADILLA OF CONEE, WHO INDICATED

CONEE MIGHT BE INTERESTED IN SUCH AN OVERFLIGHT.) SATELLITE-ACQUIRED DATA WOULD INCLUDE METEOROLOGICAL DATA, SUCH AS FROM THE VERY HIGH RESOLUTION RADIOMETER (VHRR) INSTRUMENT ABOARD THE NOAA-2 SATELLITE AND REMOTE SENSING DATA ACQUIRED BY THE NASA EARTH RESOURCES TECHNOLOGY SATELLITE (ERTS-1). TO COLLECT METEOROLOGICAL GROUND TRUTH, IT IS PROPOSED THAT ABOUT 20 MICRO- CLIMATOLOGY STATIONS BE INSTALLED IN THE TEST SITE AREA TO MEASURE TEMPERATURE AND HUMIDITY IN THE IMMEDIATE VICINITY OF EACH STATION. WE UNDERSTAND THAT THE U. S. DEPARTMENT OF AGRICULTURE WOULD BE WILLING TO FURNISH SUCH EQUIPMENT AND ASSIST IN ITS INSTALLATION. A JOINT MEXICAN- AMERICAN FIELD TEAM OF ABOUT 4-6 PERSONS WOULD BE RESPONSIBLE FOR COORDINATING THE GROUND TRUTH EFFORT. WE WOULD EXPECT ONLY PART TIME FIELD WORK BY ADDITIONAL US PERSONNEL, WITH PERHAPS ONE NASA CONTRACT EMPLOYEE ON LONGER TERM FIELD ASSIGNMENT IF NECESSARY. IT IS PROPOSED THAT DATA PROCESSING AND ANALYSIS BE CONDUCTED AT THE JOHNSON SPACE CENTER (JSC, FORMERLY MANNED SPACE-CRAFT CENTER), HOUSTON, TEXAS, AS THE JSC HEALTH APPLICATION OFFICE WOULD BE MOST INTIMATELY INVOLVED IN THE PROJECT. WE WOULD WELCOME TRAINED MEXICAN NATIONALS, SUCH AS ENTOMOLOGY EXPERTS FROM THE RESEARCH STAFF OF THE SECRETARIA DE AGRICULTURA, REMOTE SENSING STAFF FROM CONEE, AND DATA PROCESSING EXPERTS, TO BE CO- LOCATED AT JSC TO PARTICIPATE IN THE TOTAL TECHNICAL MANAGEMENT OF THE PROPOSED PROJECT.

PAHASE II- IF DURING PAHSE I RELIABLE CLIMATOLOGICAL PARAMETERS ARE IDENTIFIED BY USE OF REMOTELY SENSED DATA, THIS METHOD WOULD BE USED DURING THE OPERATIONAL PERIOD OF THE ERADICATION CAMPAIGN, ON A ROUTINE BASIS, TO INDICATE SPECIFIC AREAS FOR AERIAL SEEDING WITH THE STERILE SCREWORM FLIES.

6. IF CONACYT AND/ OR THE MEXICAN SPACE COMMISSION FIND THE PROPOSED PROJECT OF INTEREST, A MEETING SHOULD BE ARRANGED AS EARLY AS POSSIBLE TO MORE FULLY DEFINE THE EXPERIMENT. TIMING FOR THIS PROJECT IS IMPORTANT BECAUSE (A) IF WE PROCEED WITH THIS PROJECT WE WOULD WANT TO OBTAIN AIRCRAFT COVERAGE OF THE PROPOSED TEST SITE BEFORE THE RAINY SEASON BEGINS IN EARLY JULY AND (B) TO MOST EFFECTIVELY EVALUATE REMOTE SENSING TECHNIQUES,
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WE WOULD WANT TO HAVE THE BENEFIT OF ANALYZING DATA FROM TWO FULL GROWING SEASONS PRIOR TO INITIATING THE OPERATIONAL SCREWORM ERADICATION EFFORT IN MEXICO IN THE SUMMER OF 1975. A TARGET DATE FOR ONE- DAY DISCUSSIONS BETWEEN NASA, CONACYT, AND CONEE WOULD BE MID-

APRIL.

ACTION: REQUEST EMABASSY DISCUSS PROPOSED PROJECT WITH
CONACYT AND MEXICAN SPACE COMMISSION. (WE UNDERSTAND
U. S. AGRICULTURAL ATTACHE IN MEXICO CITY HAS ALREADY BEEN
INVOLVED IN CURRENT JOINT COMMISSION EFFORTS.) ALSO REQUEST
EMBASSY SET UP MEETING AT EARLIEST POSSIBLE DATE TO
DISCUSS PROPOSED PROJECT. ROGERS

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